

EVOLUTION OF POPULATION, RESOURCES, ENVIRONMENT AND INTEGRATED STRATEGY OF THEIR DEVELOPMENT IN SHANGHAI

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ABSTRACT: Study on coordination among population(P), resources(R), environment(E), and development(D) (PRED) has comprehensive and extensive contents, which serves as the core of sustainable development. Since the 1980s, PRED has been becoming one of the most important regional studies in China. Based on existing research and collected data, this study analyses the course of the PRED evolution in Shanghai during 1978 – 1995. Seven indicators were selected to assess the evolution characteristics and interaction mechanism of Shanghai PRED, including growth rate of GDP, growth rate of population, growth rate of industry energy consumption etc. These indicators were designed to reflect representativeness, relativity and data availability. This study showed that there was obvious asynchronous among indicators and annual change of single indicator lacked of regularity, coordination between environment and economic remains the main challenge facing Shanghai, and the key readjusted factors will be population growth rate, GDP growth rate and per residential area growth rate. The study further pointed out that plan, structure and system power were equally important for the more coordinate development in Shanghai. Detailed discussion on the systematic measurement in each aspect of P, R, E, D indicated that higher development level is the essential basis for Shanghai PRED coordination.

KEY WORDS: population; resources; environment; development; evolution; Shanghai

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1 INTRODUCTION

Population, resources, environment and development, which are four most important elements related to regional sustainable development. In China, they are defined as P(population) R(resources) E(environment) D(development) system so as to convey

the systematic relations among them. Coordination among PRED is a great systematic engineering with comprehensive interrelation. Early in the 1970s, studies about regional PRED had been taken by west scholars(BASIAGO, , 1996). In China, talking about coordination and systematic thinking, it can come back to the point of “nature-mankind integration”, but taken PRED as definite research object which began at the

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progress of whole society. The indicators that use to judge economic growth should include resources consumption and loss of pollution etc. A new pattern will consist of new energy technology, more renewable resources use, more effectiveness of environment and resources and high life quality.

Now, secondary industry which keep the continuous high growth is still the main industry in Shanghai economic system. So it will be a hard task to adjust industry structure to planning goal on the basis of current status. To realize the adjusting target of year 2010, the annual growth rate of tertiary industry should be 1.6 – 1.9 times of GDP planning growth rate. Such a speed is far high than current speed level. So it is necessary to draw up the inclining industry developing poling early. To further ecological spatial distribution in Shanghai City, an ecological urban construction plan should be made first, that focus on human health and minimizing negative environmental effects. Sometimes a certain economic loss will be the cost of environment improving that human must pay. For CBD (Center Business District) construction, ecological control is specially important.

The built-rebuilt way that most metropolis in South America and Asia once practiced should be avoided in Shanghai. In those developing area, development should not be at the cost of environment. Second, some compulsory measures about urban construction should be determined, such as per capita land use, percapita green land. Third, an ecological life manner should be cultivated. For example, subdistrict center construction will make it possible to work, live, study, and shop in one area. In addition, clear economic and environment function district will also the effective way for urban ecological distribution.

4 SOME CONSIDERATION ABOUT SHANGHAI PRED COORDINATION

1) The beneficial affects of systematic thinking and theory can be realized only through more concrete countermeasures in aspect of popluation, resources, environment, economic and urban construction.

2) Coordination among PRED system, in large

extent, it means a loss of short-term and partial benefits. So a long-term strategy will be the basic of coordination, i. e., readjusting industry structure in Shanghai, rapid development of secondary industry was maintained by high input and the per capita output was downswing it cannot meet the needs of Shanghai urban function building target, also can not meet the needs of intensive growth pattern. In a period, limiting the development of secondary industry may cause a series questions such as employment and decreasing GDP growth rate, but there is no way in Shanghai long-run development. At the other side, considered large scale of per capita output raising in agriculture, and there exist a large market demands, the first industry should be greatly supported by government.

3) The theory and running model of PRED system will have been improving in practice.

Coordination among Shanghai PRED can be realized only in a high development level.

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